Lab 5

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Develop a Java program to create a class Bank that maintains two kinds of account for its customers, one called savings account and the other current account. The savings account provides compound interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level, a service charge is imposed.

Create a class Account that stores customer name, account number and type of account. From this derive the classes Cur-acct and Sav-acct to make them more specific to their requirements. Include the necessary methods in order to achieve the following tasks:

a) Accept deposit from customer and update the balance.

b) Display the balance.

c) Compute and deposit interest

d) Permit withdrawal and update the balance

e) Check for the minimum balance, impose penalty if necessary and update the balance.

```
import java.util.Scanner;
import java.lang.Math;

class Bank {
    int accountNo;
    double balance;
```

```
    Bank(int accountNo) {
        this.accountNo = accountNo;
        this.balance = 0;
    }

    void deposit(double depAmount) {
        this.balance += depAmount;
    }

    void withdraw(double withAmount) {
        this.balance -= withAmount;
    }

    double interest(double rate, int time) {
        System.out.println("Interest is not applicable in current account");
        return 0.0;
    }
}

class SavingsAccount extends Bank {
    SavingsAccount(int accountNo) {
        super(accountNo);
    }

    double interest(double rate, int time) {
        double interest = (balance * Math.pow((1 + (rate / 100)), time)) - balance;
        balance += interest;
        return interest;
    }
}
```

```
class CurrentAccount extends Bank {
    static double withdrawLimit = 1000;

    CurrentAccount(int accountNo) {
        super(accountNo);
    }

    public void withdraw(double withAmount) {
        super.balance -= withAmount;
        if (balance < withdrawLimit) {
            System.out.println("Withdraw Limit Reached - Deducting Service Charge");
            balance -= 100;
        }
    }
}

class Run {
    public static void main(String[] args) {
        System.out.println("Abhinav Sanjay 1BM23CS009");
        double amount;
        Scanner sc = new Scanner(System.in);

        System.out.print("1. Open Savings Account\n2. Open Current Account\n\nEnter
Choice: ");
        int choice = sc.nextInt();
        Bank acc;

        if (choice == 1) {
            acc = new SavingsAccount(101);
        } else {
```

```
            acc = new CurrentAccount(201);
        }


        System.out.println("1. Deposit\n2. Withdraw\n3. Show Balance\n4. Compute Interest\n5. Exit\n");
        while (true) {
            System.out.print("Enter Choice: ");
            choice = sc.nextInt();
            switch (choice) {
                case 1:
                    System.out.print("Enter deposit amount: ");
                    amount = sc.nextDouble();
                    acc.deposit(amount);
                    break;
                case 2:
                    System.out.print("Enter withdraw amount: ");
                    amount = sc.nextDouble();
                    acc.withdraw(amount);
                    break;
                case 3:
                    System.out.println("The balance is " + acc.balance);
                    break;
                case 4:
                    System.out.println("The interest is " + acc.interest(5, 1));
                    break;
                default:
                    System.exit(0);
            }
        }
    }
}
```

```
C:\Abhinav 3A>java Run
Abhinav Sanjay 1BM23CS009
1. Open Savings Account
2. Open Current Account

Enter Choice:1
1. Deposit
2. Withdraw
3. Show Balance
4. Compute Interest
5. Exit

Enter Choice: 1
Enter deposit amount: 5000
Enter Choice: 2
Enter withdraw amount: 1000
Enter Choice: 3
The balance is 4000.0
Enter Choice: 4
The interest is 200.0
Enter Choice: 5

C:\Abhinav 3A>java Run
Abhinav Sanjay 1BM23CS009
1. Open Savings Account
2. Open Current Account

Enter Choice:2
1. Deposit
2. Withdraw
3. Show Balance
4. Compute Interest
5. Exit

Enter Choice: 1
Enter deposit amount: 6000
Enter Choice: 2
Enter withdraw amount: 1000
Enter Choice: 3
The balance is 5000.0
Enter Choice: 4
Interest is not applicable in current account
The interest is 0.0
Enter Choice: 5
```